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| MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP<br>300 S. WACKER DRIVE<br>32ND FLOOR<br>CHICAGO, IL 60606 |             |                      | LUCAS, ZACHARIAH    |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 1648                |                  |

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**MAILED**  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/701,979  
Filing Date: February 12, 2001  
Appellant(s): MEHTA ET AL.

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A. Blair Hughes  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed May 9, 2005.

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**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

No amendment after final has been filed.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

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The rejection of claims 1, 2, and 4-13 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

|           |                  |        |
|-----------|------------------|--------|
| 3,431,886 | McCormick et al. | 3-1969 |
|-----------|------------------|--------|

|           |                 |        |
|-----------|-----------------|--------|
| 5,650,327 | Copeland et al. | 7-1997 |
|-----------|-----------------|--------|

|           |               |        |
|-----------|---------------|--------|
| 5,318,795 | Stokes et al. | 6-1994 |
|-----------|---------------|--------|

McManus et al., "Staining Methods: Histologic and Histochemical," Paul B. Hoeber, Inc., New York, 1960, pages 124-151, 223-245, and 361-372.

"reagent," Stedman's Online Medical Dictionary, 27th Edition, [www.stedmans.com](http://www.stedmans.com), 2003.

"reagent," The On-line Medical Dictionary, [cancerweb.ncl.ac.uk/omd/](http://cancerweb.ncl.ac.uk/omd/), 1997-2003.

**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1,2, and 4-13 stand rejected under 35 U.S.C. 103(a) as obvious over the teachings of McCormick in view of Copeland, Stokes, and McManus. As there has been no grouping of the claims, or any assertion that the claims do not stand or fall together, claim 1 is treated as representative of the rejected claims. As indicated by the Appellant, this claim is drawn to an

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automated method for the staining of biological materials on a slide. The method includes steps of providing a first and second stable solutions, where a combination of these solutions results in an unstable staining solution, and sequentially applying the first and second solutions to a biological specimen on a slide through use of an automated delivery system.

McCormick teaches an automated method for the staining of biological materials on a slide comprising the provision of a plurality of staining solutions, a slide having a biological specimen thereupon, and an automated stain delivery system, and the sequential application of the different solutions to the specimen. See column 1 lines 36-45, and column 2 lines 6-40. However, the reference does not teach the sequential application to the specimen of a plurality of stable solutions, which solutions when mixed create an unstable staining solution.

McManus provides teachings relating to standard staining solutions in the art. See e.g., pages 134, 138, 149, 228, and 240. Further, the reference teaches the mixing of these stains just prior to use from stable stock reagents, and indicates that the stains are unstable over time. Pages 134 (step 2), 135 (step 4), 138 (step 2), 240 (description paragraph for Verhoeff's Elastic Tissue Stain), and 368 (step 5). Thus, the mixing of stable reagents to achieve an unstable staining solution was known in the art. Further, it was also known in the art to mix such reagents immediately prior to use. However, although this reference demonstrates that the use of unstable stains formed by mixing stable reagents was known, the reference does not teach the use of such stains in an automated method.

However, the teachings of each of Copeland and Stokes indicate that the use of such stains would have been obvious to one of ordinary skill in the art. Each of these references, like McCormick, describes methods for the automated staining of biological specimens on slides.

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Copeland teaches a method for the staining of such specimens through the application of reagents thereto (col 1, lines 15-20), and teaches mixing of reagents on the slide surface using a gas stream-induced vortex (col, 4, lines 35-50). Thus, Copeland teaches the mixing of reagents on the slide surface. Further, Stokes, in the process of describing the automated staining method disclosed therein, states "Where the claims are directed to a step in the staining process, it is understood that the step may comprise a single step where a combination of reagents are applied or sequential steps where more than one reagent or combination of reagent is applied." Thus, the reference indicates that multiple reagents may be applied as part of single staining step. Because the reference indicates that multiple reagents may be involved in the staining step, it clearly implies that multiple reagents may be involved in a single step of staining. Thus, the teachings of Copeland and Stokes indicate that it would have been obvious to those of ordinary skill in the art to mix a plurality of reagents on a slide during a single step of staining a biological specimen.

In support of this, it is further noted that the art provides no limitation on what is meant by a reagent. Rather, as each of the patents refers to the mixing of reagents, it would have been apparent that the meaning of the term is the same as that generally applied in the art. I.e. that a reagent encompasses "Any substance added to a solution of another substance to participate in a chemical reaction," or that react to form a colored product (a stain). See e.g., definitions of "reagent" found on Stedman's Online Medical Dictionary and in the CancerWEB Online medical dictionary. Thus, because the teachings of McCormick, Copeland, and Stokes render obvious the mixing of reagents on a slide in the process of staining a biological specimen, because the art indicates that the term "reagent" as used in the disclosures would include two or more reagent solutions combined to form a third solution, and because the teachings of

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McManus demonstrate that the mixing of stable reagents to form an unstable stain was known in the art, the combined teachings of the references render the claimed invention obvious.

Those in the art would have been motivated to use the mixing steps of Copeland and Stokes in the staining method of McCormick so as to make use of the particular staining properties of the stains disclosed in McManus. Further, because Copeland and Stokes teach the mixing of reagents on a slide surface, and the teachings of McManus suggest the mixing of reagents to form the stains immediately prior to use, it would have been obvious to those of ordinary skill in the art to mix the reagents of McManus on the slides as described by Copeland and Stokes. The teachings of the references therefore provide both a motivation, and an expectation of success, in the combination of the reference to result in the claimed method of staining biological specimens.

**(11) *Response to Argument***

The Appellant provides descriptions of each of the cited references. While the Examiner agrees that no one of the reference teaches each of the claim limitations, such is not required as this is a rejection under 103, based on the cumulative teachings of the applied references.

In the main body of the Appellant's argument section of the Appeal Brief (beginning on page 6), the Appellant provides two main arguments in traversal of the rejection. The Appellant first argues that the prior art does not teach that the separate ingredients of an unstable solution may be individually applied to a biological sample. The Appellant's second argument is that the Examiner has applied improper hindsight in the analysis of the prior art. These arguments should not be found sufficient to overcome the rejection for reasons described below.

**The prior art does render obvious the successive application and mixing of reagents on a sample to form an unstable stain.**

In their first general argument in traversal, i.e., that the references do not teach the mixing of individual reagents, the Appellant provides two arguments in support of the assertion that this limitation is not taught by the art. The Appellant first argues that none of the prior art references disclose this limitation, or provide motivation for the use of such a step. Second, the Appellant asserts that the Examiner has misinterpreted the teachings of Stokes, and that this reference nowhere provides support for the Examiner's position that the reference renders obvious the mixing of multiple reagents to form an unstable stain on the slide with the biological specimen to be stained.

In response the first assertion, that none of the references explicitly teaches the automated delivery of individual reagents to a slide for mixing in the presence of a specimen, the Examiner agrees that no such explicit teaching is present. However, such is not required to establish a prima facie case of obviousness. The Federal Circuit has stated that the suggestion to combine references in an obviousness rejection may be shown by "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." In re Fine, 5 U.S.P.Q.2d 1596, at 1598 (1988). In the present case, the knowledge of those in the art suggests the combination resulting the claimed invention. For example, as was described above, the teachings of each of Copeland and Stokes refer to the mixing of reagents on the slide surface. While Copeland teaches that only one staining reagent is applied between washes, the reference does not preclude those in the art



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from understanding that the stains may be mixed, using the mixing process disclosed by the reference, from sequentially added components that together form the reagent. Further, Stokes explicitly teaches that multiple reagents may be added to the sample to be stained in a single step. Thus, the combined teachings of Stokes, providing this teaching, and the teachings of Copeland, teaching the mixing of reagents on the slide surface, would have indicated to those in the art that individual component reagents of a particular stain may be added to the sample of mixing on the slide, such as by the vortexing described by Copeland.

The Appellant further asserts that there would have been no motivation for those in the art to use such a method. This argument should not be found persuasive because the teachings of the Copeland and Stokes references indicate that the mixing of multiple reagents in a single staining step was contemplated by the prior art. Further, the teachings of McManus indicate that not only were those in the art aware of unstable stains formed from the mixing of stable reagents, but also explicitly indicate that the reagents should be mixed immediately prior to use, thereby suggesting that the closer to the point of staining they are mixed the better. As Copeland and Stokes teach the mixing of such reagent in situ, those of ordinary skill in the art would have been motivated to conduct such mixings in the vortexing step disclosed by Copeland and Stokes. This argument should also not be found persuasive.

The Appellant's final argument on this basis is that the Examiner has misinterpreted the teachings of Stokes. The Appellant argues that the Stokes reference teaches only the application of pre-mixed staining solutions to the biological samples. In support of this assertion, the Appellant points to an example of the method of Stokes in which a series of stains are applied sequentially. However, this is merely a single embodiment of the Stokes method, and does not

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account for the entirety of this reference's teachings. In particular, as was described above, the Stokes reference teaches that stains may be added in a step, but that a step does not require the addition of only a single reagent in each step. Thus, the reference is clearly not limited to embodiments where only pre-mixed stains are added to a sample as is indicated by the cited passage indicating that a single staining step is not limited to the application of a single reagent. These teachings, in addition to the understanding of the term "reagent" in the art, and the knowledge in the art regarding the use of unstable stains made from a combination of stable reagents (as exemplified in McManus), render the claims obvious.

The Appellant's first argument in traversal of the rejection should therefore not be considered sufficient to overcome the rejection.

**The art provides the necessary teaching to render the claimed method obvious without resort to improper hindsight.**

The Appellants second argument is that the Examiner has applied improper hindsight analysis in the application of the current rejection. Appellant asserts that there is no description in the prior art to interpret the term "reagent" as was done by the Examiner in reading the cited references. This argument should not be found persuasive.

With respect to this assertion of improper hindsight, it is first noted that the courts have acknowledged that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. See, MPEP § 2145 X (A); and *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). However, so long as the rejection takes into account only knowledge which was

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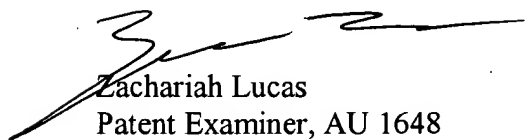
within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Appellant's disclosure, such a reconstruction is proper.

In the present case, the Examiner's interpretation of the term "reagent" is supported both the implications of the Stokes and Copeland references, and by the generally understood definition of the term in the art, as illustrated with reference to two dictionaries dealing with the biochemical arts. The remainder of the rejection is based solely on what is explicitly or implicitly disclosed in the cited references as was described above. Because support for the claim limitations is found in the teachings of the prior art without reference to the teachings in the application, the Appellant's assertion of impermissible hindsight should not be found persuasive, and the rejection affirmed.

For the above reasons, it is believed that the rejections should be sustained.

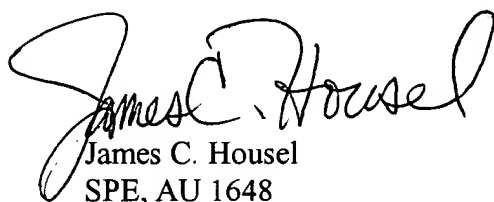
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Respectfully submitted,



Zachariah Lucas  
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July 19, 2005

Conferees



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